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IN REPLY REFER TO

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JOINT LETTER

From: Chief of Naval Operations
Commandant of the Marine Corps

To: Distribution

Subj: U.S. NAVY, U.S. MARINE CORPS POSITIONING, NAVIGATION AND TIMING (PNT) POLICY

Ref: (a) CNO ltr Ser 09/1U500942 of 1 Aug 91
(b) Federal Radionavigation Plan (FRP) series
(c) Chairman, Joint Chiefs of Staff (CJCS) Master Positioning, Navigation and Timing Plan (MPNTP) series
(d) OPNAVINST 9420.1A
(e) CNO ltr Ser N00/8U5000076 of 17 Mar 98

1. U.S. Navy, U.S. Marine Corps (USN, USMC) PNT Policy. This policy provides planning guidance for USN, USMC PNT capabilities for validated requirements in space, air, surface, and undersea environments. It encompasses all PNT techniques including celestial, visual, radar, sonar (including bottom contour), radionavigation, dead reckoning, time and frequency standards, and time transfer systems as they relate to war fighting capability and safety of passage. It serves to coordinate Naval Policy with that of the Department of Defense (DoD).

2. Reference (a) is canceled.

3. Reference (b) delineates policies and plans for common-use, federally provided radionavigation systems. Reference (c) describes the status of operational positioning, navigation and timing systems used by the DoD. It also describes the status of major DoD positioning, navigation and timing R&D programs. Reference (d) provides the Navy and Marine Corps with guidance regarding planning for and administration of positioning and navigation systems.

4. Applicability. This policy applies to all USN and USMC PNT systems. These systems can be divided into three groupings: external reference systems, self-contained systems, and hybrid systems.

a. External reference systems. This group includes absolute and relative radioelectronic positioning and timing systems.

Position, time, and frequency are determined in relation to transmissions from earth transmitters or satellites.

b. Self-contained systems. This group includes dead reckoning systems ranging from simple heading and speed sensors and timing devices to sophisticated high accuracy inertial navigation and atomic standard systems. It also includes systems such as celestial, visual, bottom contour, radar, sonar, and autonomous timing systems.

c. Hybrid systems. Hybrid systems, sometimes referred to as embedded systems, are combinations of positioning, navigation, and/or timing systems that are integrated so that a major attribute of one system will augment the capabilities or minimize the weaknesses of another. Examples are Global Positioning Systems (GPS)-inertials, Doppler-GPS, and GPS disciplined time standards.

5. The following policy is established:

a. The Navy and Marine Corps shall, when feasible, rely on those PNT systems provided by DoD agencies or by the Department of Transportation (DOT).

b. Every platform/user with a validated requirement shall have a primary and at least one alternate means of position and precise time determination. The alternate means must be independent of the primary and may be a self-contained system. Position determination, navigation, and time/time interval are critical to any aspect of Naval warfare, though the required performance may vary by user and by mission. The technical complexity of the solution may vary with the platform/user. The use of manual means of position determination (dead reckoning) should not be precluded.

c. PNT systems shall be built to jointly adopted standards and be interoperable within Naval forces, with other services and with allied forces. The complexity of modern warfare requires all units to exchange PNT dependent data in a precise, timely, and efficient manner. Resource and requirements sponsors shall ensure inclusion of interoperability parameters in appropriate documents.

d. NAVSTAR GPS is the primary external PNT system for U.S. Naval operations. GPS shall provide onboard systems with positioning, velocity and precise time/time interval data with common geographic and time references for fleet and joint service

operations. However, Naval aircraft will continue to use the Tactical Air Navigation (TACAN) system as the primary navigation system for enroute and terminal flight in controlled airspace until replaced by GPS. Other external systems may be used if GPS does not provide an acceptable level of performance.

e. GPS Precise Positioning Service (PPS) systems, which shall always be keyed when operated, shall be utilized for all combat, combat support, and combat service support operations and training. Keyed operation provides: 1) access to the PPS; 2) anti-spoofing; and 3) improved resistance to intentional and unintentional interference. Unkeyed operation degrades performance to, at best, the Standard Positioning Service and provides no protection against spoofing, limited protection against interference, and will likely provide unacceptable performance.

f. All U.S. Navy and Marine Corps tactical aircraft, combatant ships and submarines must have a dead reckoning navigation capability. The interval between required position updates is based on a number of factors, including platform missions, and confidence in and availability of an external reference system for update.

g. Policy relating to the development, procurement, and use of electronic charts on Navy vessels is set forth in the U.S. Navy Electronic Chart Display and Information System Policy per reference (e).

h. Proficiency in the use of celestial navigation must be maintained. Use of the sextant must continue to be taught and practiced. Use of the System to Estimate Latitude and Longitude Astronomically (STELLA), developed by the U.S. Naval Observatory (USNO), is authorized and encouraged for ship, submarine navigation and for Personnel Advancement Requirements. For record keeping purposes, the STELLA log computer file can be used in place of the Navigation Workbook. Alternatively, a printed copy of the STELLA log may be attached to the Navigation Workbook. The USNO plans to continue publication of paper nautical almanacs which, if preferred, may be used. No other automated/computerized celestial navigation programs are authorized for USN navigation due to unknown accuracy and unvalidated star chart databases.

i. Proficiency in land navigation must be maintained. Use of the map and compass must continue to be taught and practiced. Expertise must be maintained in terrain-following techniques and in the use of manual devices for purposes such as land navigation, call for fire, forward observers, and forward air controllers

j. Navigation and timing interfaces and protocols shall be standardized between systems to the maximum extent feasible. There is an existing and increasing need for systems aboard Naval platforms to have accurate PNT data to accomplish their mission. Standardization of interfaces and protocols will minimize the incompatibilities PNT data users will have to accommodate.

k. There is a need for a continuous all-weather capability during all phases of marine navigation, especially in the harbor and harbor approach phase. Efforts will continue to define and validate requirements and to take advantage of modern technology. U.S. Navy vessels shall be equipped to make full use of progress in this area. However, traditional piloting methods such as visual and radar shall continue to be used to ensure safety of passage.

l. PNT requirements shall be met at the most cost effective life cycle cost.

m. The Director, Space, Information Warfare, Command and Control, shall be the sponsor for all Navy PNT systems used by more than one platform sponsor. Platform sponsors shall sponsor those PNT systems unique to their respective platforms. Funding responsibilities will be determined on a case-by-case basis.

n. The Commanding General, Marine Corps Combat Development Command, shall be the sponsor for all Marine Corps PNT systems used by more than one platform. Platform sponsors shall sponsor those PNT systems unique to their respective platforms. Funding responsibilities will be determined on a case-by-case basis.

o. The Director, Space, Information Warfare, Command and Control shall ensure compliance with the policy contained herein by serving as a signatory on all Navy PNT requirements documents.

p. The Commanding General, Marine Corps Combat Development Command, shall ensure compliance with the policy contained herein by serving as a signatory on all Marine Corps PNT requirements documents.

q. The Oceanographer of the Navy, through the U.S. Naval Observatory, shall set the technical standards for precise time, time interval, Earth orientation, and astrometric products.

6. Definitions. Definitions shall be in accordance with references (b) and (c) (FRP and CJCS MPNTP). Where these documents differ, the MPNTP shall be the primary reference.

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